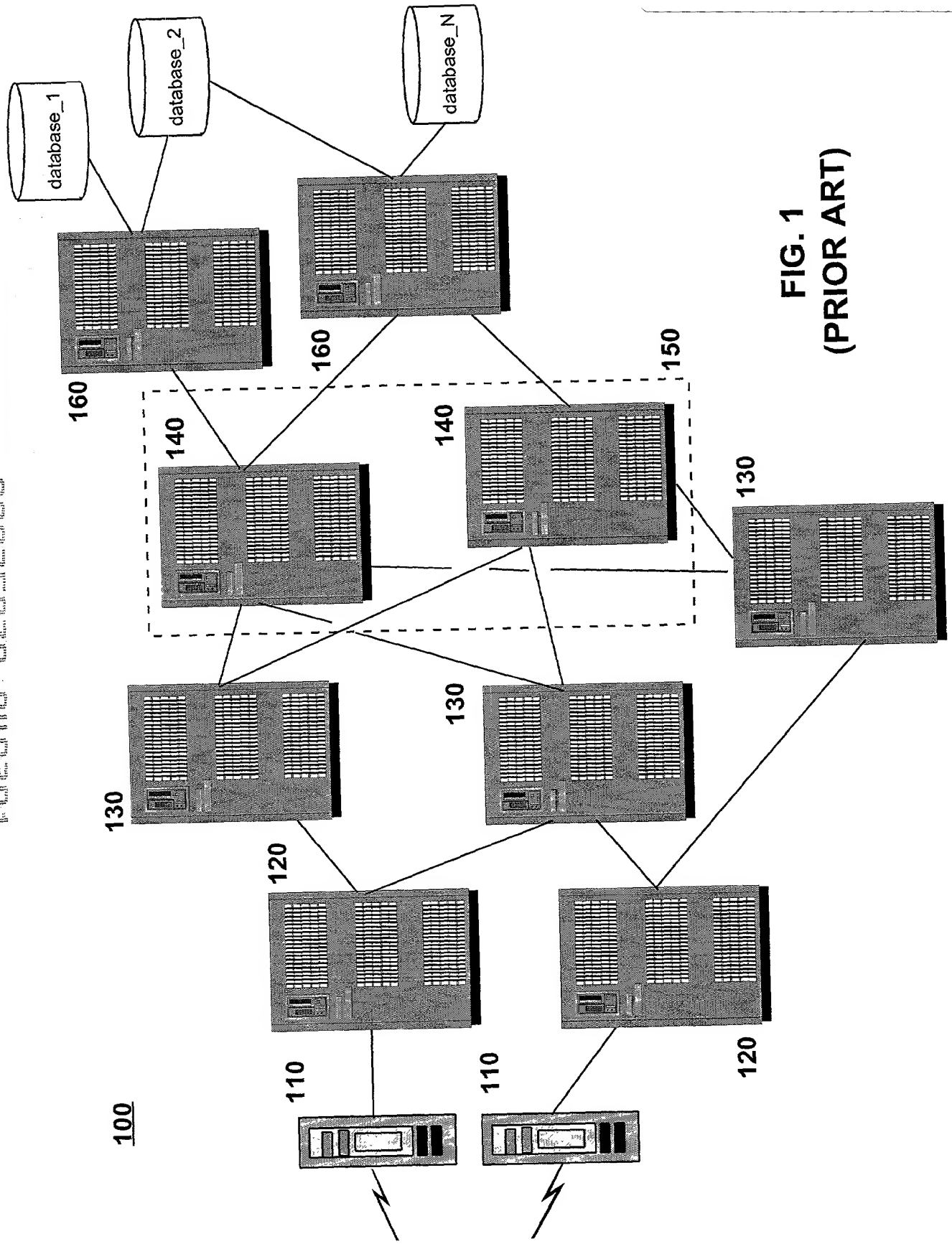


FIG. 1
(PRIOR ART)

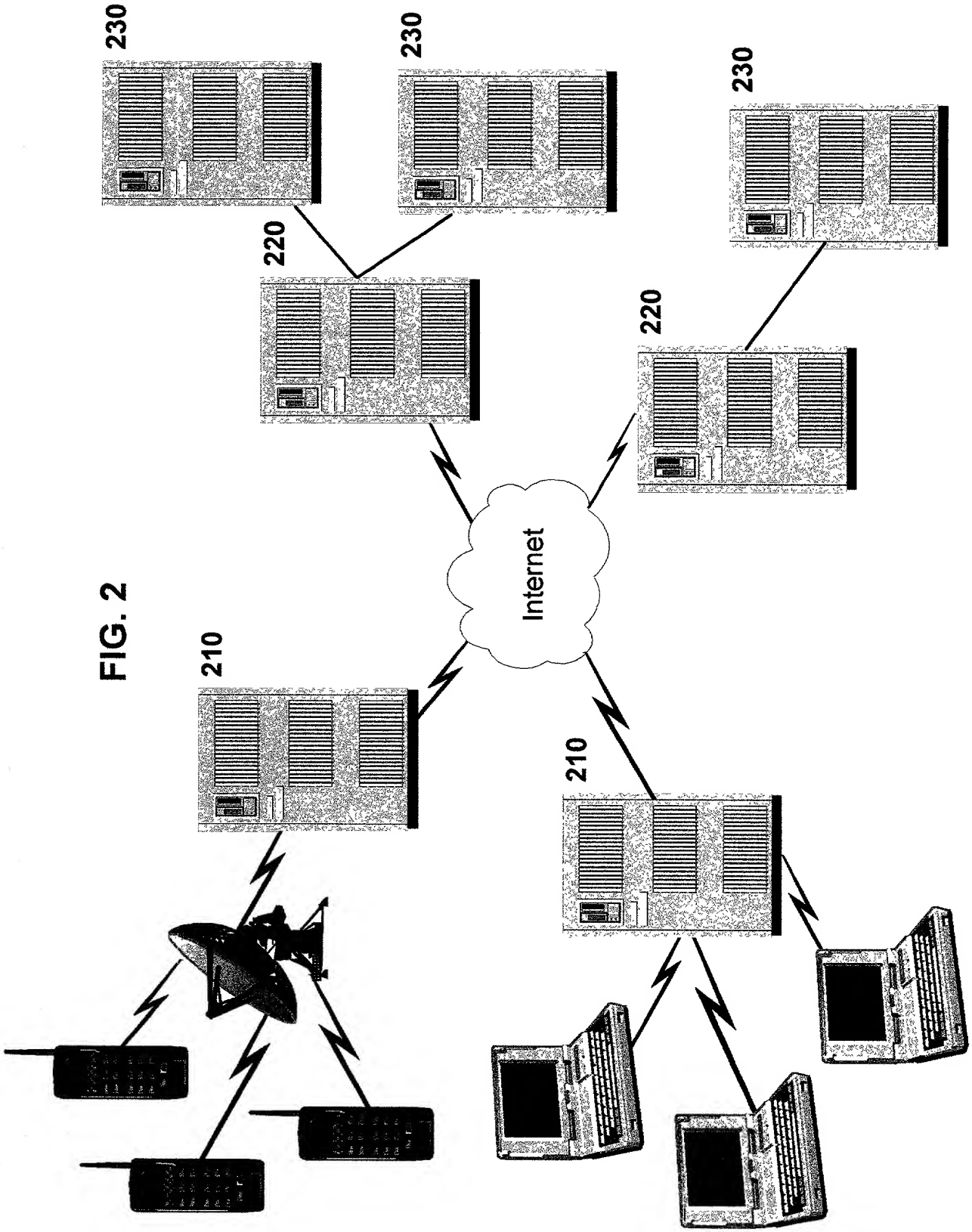


FIG. 2

FIG. 3A (PRIOR ART)

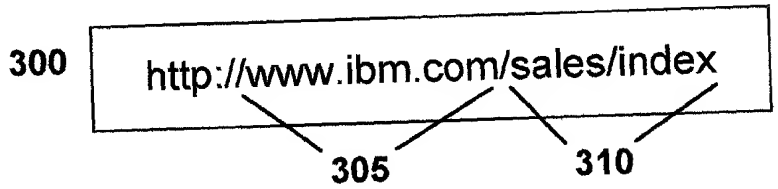


FIG. 3B (PRIOR ART)

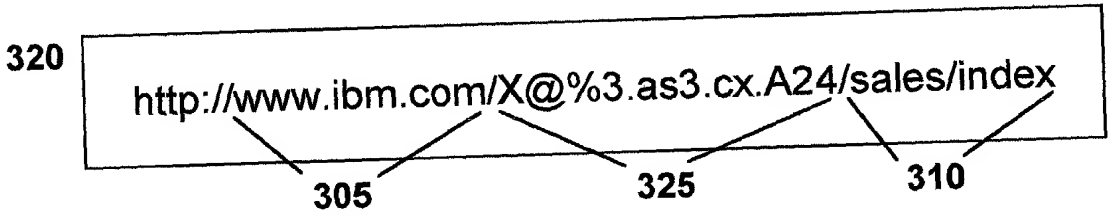


FIG. 3C

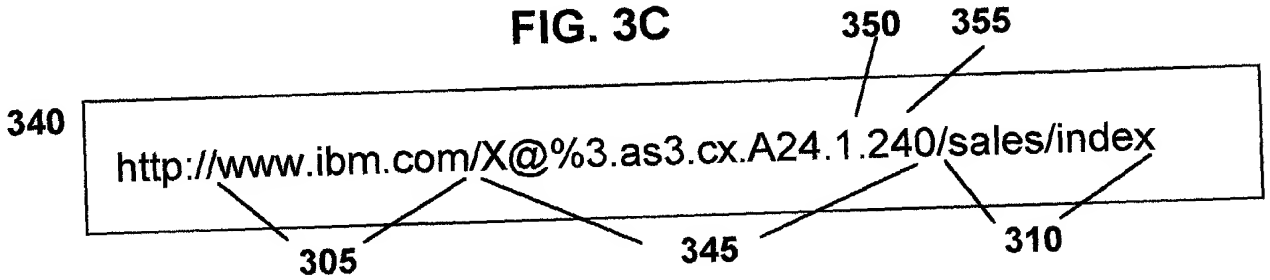


FIG. 4

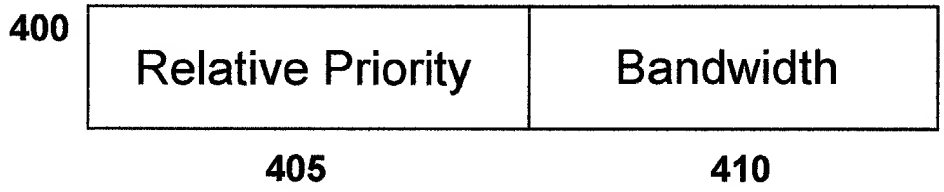

400
Relative Priority
Bandwidth
405
410

FIG. 5A

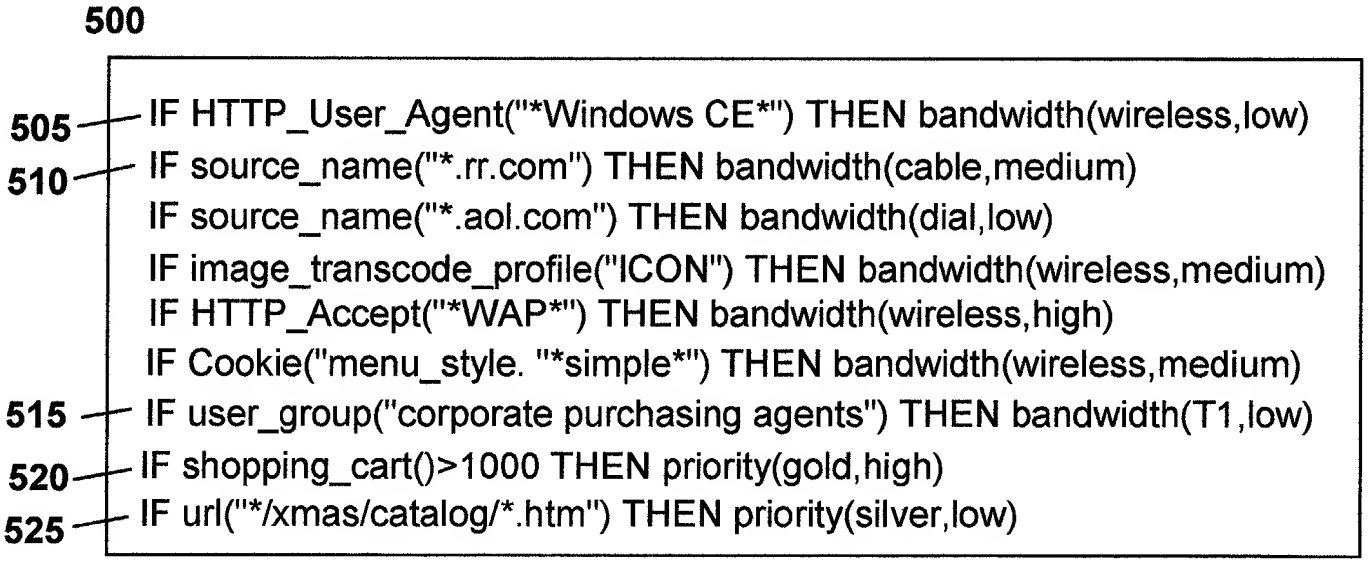

500
505
IF HTTP_User_Agent("*Windows CE*") THEN bandwidth(wireless,low)
510
IF source_name("*.rr.com") THEN bandwidth(cable,medium)
IF source_name("*.aol.com") THEN bandwidth(dial,low)
IF image_transcode_profile("ICON") THEN bandwidth(wireless,medium)
IF HTTP_Accept("*WAP*") THEN bandwidth(wireless,high)
IF Cookie("menu_style. "*simple*") THEN bandwidth(wireless,medium)
515
IF user_group("corporate purchasing agents") THEN bandwidth(T1,low)
520
IF shopping_cart()>1000 THEN priority(gold,high)
525
IF url("*/xmas/catalog/*.htm") THEN priority(silver,low)

FIG. 5B

550

laptop_xyz	Netscape 4.0	44000
cell_phone_1	Windows CE*	14400

555 560 565

FIG. 6

600

www.ibm.com	high	15440	B'01010011'
site_xyz	medium	144	B'11001010'

605 610 615 620

FIG. 7

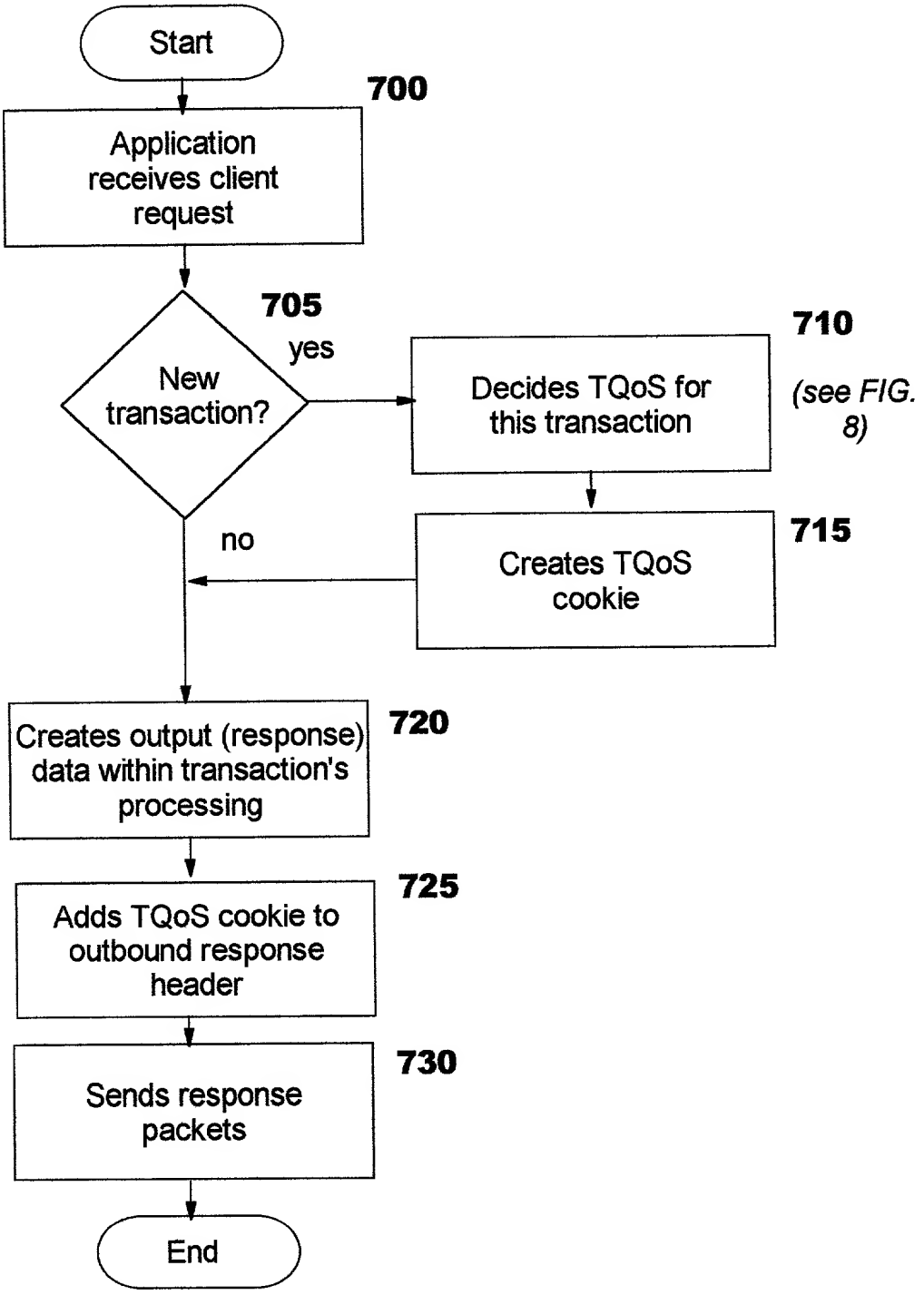

Start
700
Application receives client request
705
New transaction?
yes
710
Decides TQoS for this transaction
(see FIG. 8)
no
715
Creates TQoS cookie
Creates output (response) data within transaction's processing
720
725
Adds TQoS cookie to outbound response header
730
Sends response packets
End

FIG. 8

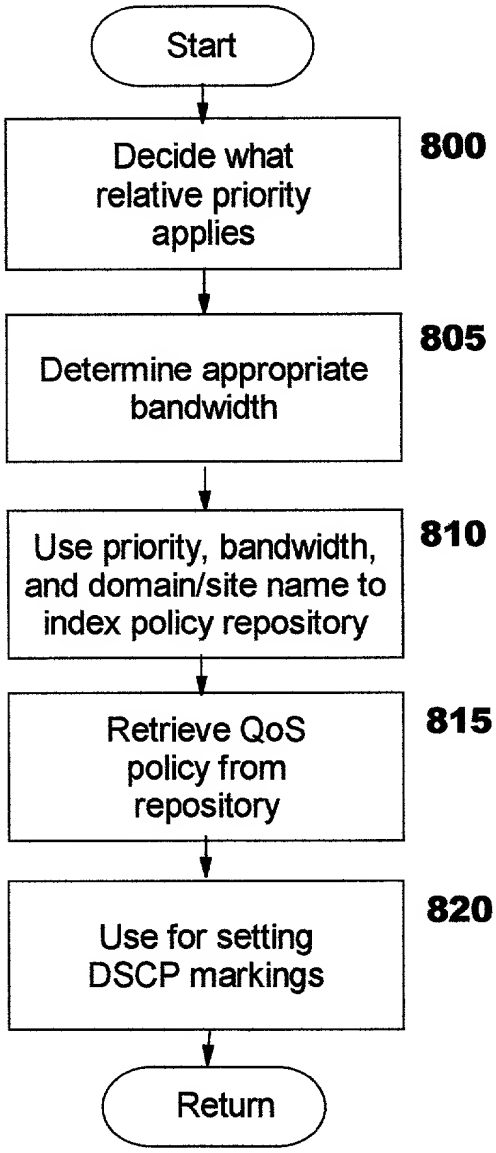
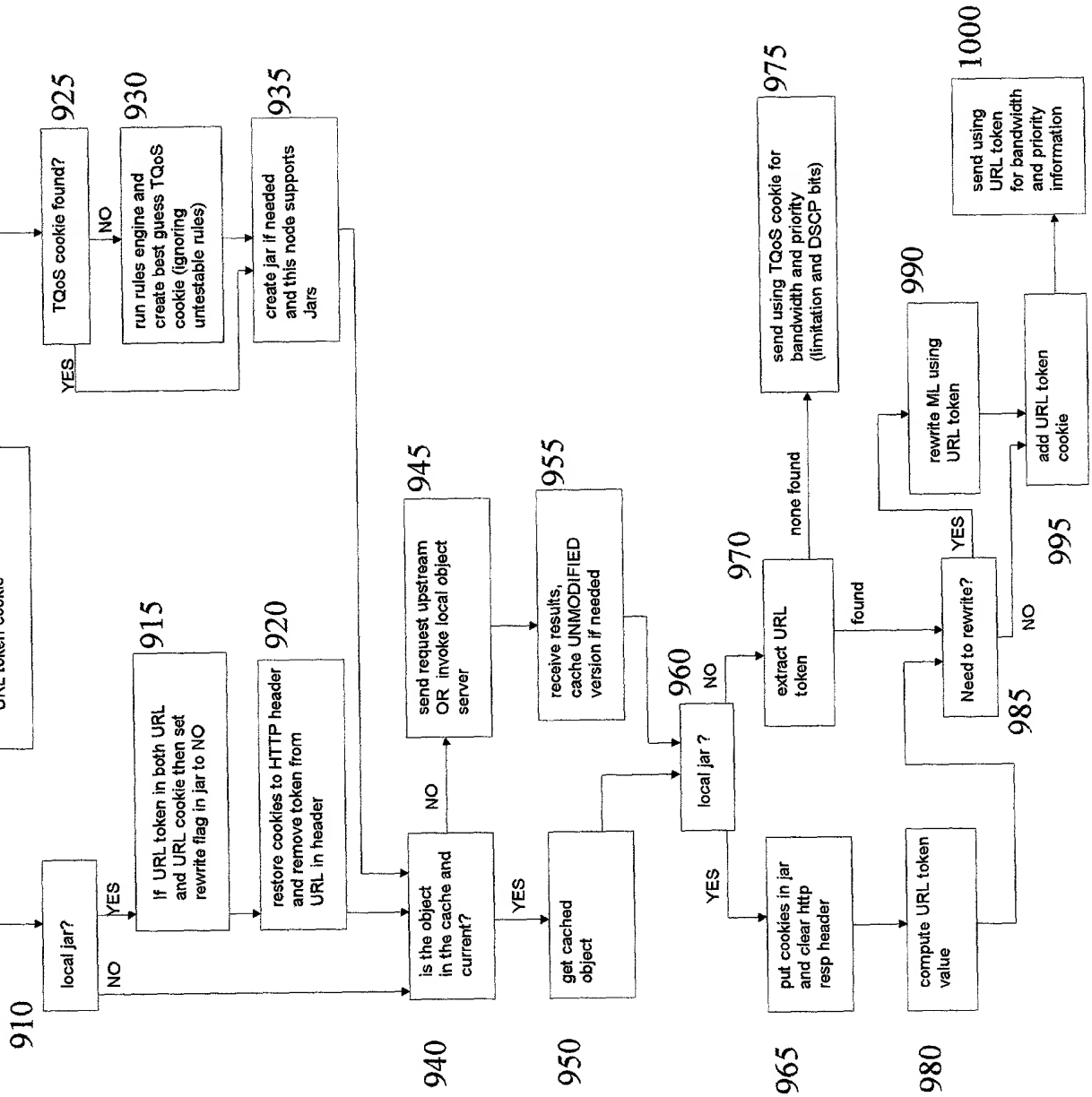

Start
Decide what relative priority applies
800
Determine appropriate bandwidth
805
Use priority, bandwidth, and domain/site name to index policy repository
810
Retrieve QoS policy from repository
815
Use for setting DSCP markings
820
Return

FIG. 9


900
receive request from downstream device or proxy/cache
905
extract URL token from URL or URL token cookie
Found
not found
910
local jar?
YES
NO
915
If URL token in both URL and URL cookie then set rewrite flag in jar to NO
920
restore cookies to HTTP header and remove token from URL in header
925
TQoS cookie found?
YES
NO
930
run rules engine and create best guess TQoS cookie (ignoring untestable rules)
935
create jar if needed and this node supports Jars
940
is the object in the cache and current?
YES
NO
945
send request upstream OR invoke local object server
950
get cached object
955
receive results, cache UNMODIFIED version if needed
960
local jar ?
YES
NO
965
put cookies in jar and clear http resp header
970
extract URL token
found
none found
975
send using TQoS cookie for bandwidth and priority (limitation and DSCP bits)
980
compute URL token value
985
Need to rewrite?
YES
NO
990
rewrite ML using URL token
995
add URL token cookie
1000
send using URL token for bandwidth and priority information